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Please find below and/or attached an Office communication concerning this application or proceeding.



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**BEFORE THE BOARD OF PATENT APPEALS  
AND INTERFERENCES**

Application Number: 10/715,790  
Filing Date: November 18, 2003  
Appellant(s): DEEDS ET AL.

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Jason O. Piche  
For Appellant

**EXAMINER'S ANSWER**

This is in response to the appeal brief filed 19 September 2006 appealing from the  
Office action mailed 03 February 2006.

**(1) Real Party in Interest**

A statement identifying by name the real party in interest is contained in the brief.

**(2) Related Appeals and Interferences**

The examiner is not aware of any related appeals, interferences, or judicial proceedings which will directly affect or be directly affected by or have a bearing on the Board's decision in the pending appeal.

**(3) Status of Claims**

The statement of the status of claims contained in the brief is correct.

**(4) Status of Amendments After Final**

The appellant's statement of the status of amendments after final rejection contained in the brief is correct.

**(5) Summary of Claimed Subject Matter**

The summary of claimed subject matter contained in the brief is correct.

**(6) Grounds of Rejection to be Reviewed on Appeal**

The appellant's statement of the grounds of rejection to be reviewed on appeal is correct.

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**(7) Claims Appendix**

The copy of the appealed claims contained in the Appendix to the brief is correct.

**(8) Evidence Relied Upon**

US 2003/0169460 A1	LIAO ET AL	09-2003
US 2004/0048624	KO ET AL	03/2004
US 6,501,770 B2	ARSENAULT ET AL	12-2002
2004/0071081 A1	ROSENFLED	04-2004
US 5,630,159	ZANCHO	05-1997
US 6,233,469 B1	WATANABE	05-2001

**(9) Grounds of Rejection**

The following ground(s) of rejection are applicable to the appealed claims:

***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.

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2. Ascertaining the differences between the prior art and the claims at issue.
  3. Resolving the level of ordinary skill in the pertinent art.
  4. Considering objective evidence present in the application indicating obviousness or nonobviousness.
1. Claims 1, 6-9, 21, 26-29, 41, 46-49 are rejected under 35 U.S.C. 103(a) as being unpatentable over LIAO et al (US 2003/0169460 A1).

Regarding claim 1, LIAO discloses a terminal adapted to communicate via at least one communications system (abstract; paragraph 3, 4), wherein the terminal comprises: a transmitter and a receiver for transmitting and receiving signals (30-Figure 1), respectively, via the at least one communications system (100-Figure 2; paragraph 37); a display capable of visually representing an available bandwidth of a current communications system (40-Figure 1; paragraph 11, 47, 50); and a controller [processor] (24-Figure 1) capable of determining the available bandwidth of the current communications system (paragraph 11), determining the required bandwidth for transmitting and receiving signals on the current communications system prior to modifying communications therewith (paragraph 28, 40, 67, 68), and altering the appearance of the display based on a determination of the available bandwidth (paragraph 11). However, LIAO does not specifically disclose wherein the display is further capable of visually representing the required bandwidth for transmitting and receiving signals on the current communications system. LIAO discloses wherein the display is capable of displaying a determined quantity of bandwidth associated with a current communication system (paragraph 11, 25, 47). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive

signals, as LIAO also teaches calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display.

Regarding claim 6, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the controller is further capable of directing the display to visually represent the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 47, 50).

Regarding claim 7, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the controller is further capable of directing the display to visually represent the available bandwidth using a first color corresponding to the available bandwidth (paragraph 11, 25, 47, 50).

Regarding claim 8, see the rejections of the parent claims concerning the subject matter these claims are dependant upon. LIAO further discloses wherein the controller is further capable of directing the display to visually represent the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 25) and wherein the controller is further capable of directing the display to visually represent a second bandwidth using a second icon corresponding to the second bandwidth (paragraph 11, 25). However, LIAO does not disclose wherein the second bandwidth is the required bandwidth. LIAO discloses wherein a required bandwidth calculation is made (paragraph 28, 40, 67, 68). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive signals, as LIAO also teaches

calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display.

Regarding claim 9, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the controller is further capable of directing the display to visually represent the first icon in comparative relation to the second icon (paragraph 11, 25) such that the controller is further capable of directing the display to visually represent the available bandwidth in relation to the second bandwidth, respectively (paragraph 11, 25). However, LIAO does not specifically disclose wherein the second bandwidth corresponds to a required bandwidth. LIAO discloses wherein a required bandwidth calculation is made (paragraph 28, 40, 67, 68). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive signals, as LIAO also teaches calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display.

Regarding claim 21, LIAO discloses a method of visually quantifying bandwidth on a terminal adapted to communicate via at least one communications system (abstract, paragraph 11), said method comprising: transmitting and receiving signals on at least one communications system (paragraph 37); determining an available bandwidth of a current communications system (paragraph 11, 47, 50); determining a

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required bandwidth for transmitting and receiving signals on the current communications system prior to modifying communications therewith (paragraph 28, 40, 67, 68); and controlling a display of the terminal to visually represent the available bandwidth of the current communications system (paragraph 11, 47, 50). However, LIAO does not specifically disclose controlling the display of the terminal to visually represent the required bandwidth for transmitting and receiving signals on the current communications system. LIAO discloses wherein the display is capable of displaying a determined quantity of bandwidth associated with a current communication system (paragraph 11, 25, 47). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive signals, as LIAO also teaches calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display.

Regarding claim 26, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein controlling the display of the terminal further comprises representing visually the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 47, 50).

Regarding claim 27, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein controlling the display of the terminal further comprises representing visually the available bandwidth using a first color corresponding to the available bandwidth (paragraph 11, 25, 47, 50).



Regarding claim 28, see the rejections of the parent claims concerning the subject matter these claims are dependant upon. LIAO further discloses wherein controlling the display of the terminal further comprises: representing visually the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 25); and representing visually a second bandwidth using a second icon corresponding to the second bandwidth (paragraph 11, 25). However, LIAO does not disclose wherein the second bandwidth is the required bandwidth. LIAO discloses wherein a required bandwidth calculation is made (paragraph 28, 40, 67, 68). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive signals, as LIAO also teaches calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display.

Regarding claim 29, see the rejections of the parent claims concerning the subject matter these claims are dependant upon. LIAO further discloses wherein controlling the display of the terminal further comprises representing visually the first icon in comparative relation to the second icon (paragraph 11, 25).

Regarding claim 41, LIAO discloses a computer program product for visually quantifying bandwidth on a terminal adapted to transmit and receive signals on at least one communications system (paragraph 3, 4, 33), the computer program product comprising a computer-readable storage medium having computer-readable program code portions stored therein (paragraph 33), the computer-readable program code

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portions comprising: a first executable portion for determining an available bandwidth of a current communications system (abstract, paragraph 11, 47, 50); and a second executable portion for controlling a display of the terminal to visually represent the available bandwidth of the current communications system (paragraph 11, 47, 50); a third executable portion for determining a required bandwidth for transmitting and receiving signals on the current communications system prior to modifying communications therewith (paragraph 28, 40, 67, 68). However, LIAO does not expressly disclose a fourth executable portion for controlling the display of the terminal to visually represent the required bandwidth for transmitting and receiving signals on the current communications system. LIAO discloses wherein the display is capable of displaying a determined quantity of bandwidth associated with a current communication system (paragraph 11, 25, 47). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive signals, as LIAO also teaches calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display.

Regarding claim 46, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the second executable portion is adapted to represent visually the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 47, 50).

Regarding claim 47, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the second executable portion is adapted to represent visually the available bandwidth using a first color corresponding to the available bandwidth (paragraph 11, 25, 47, 50).

Regarding claim 48, see the rejections of the parent claims concerning the subject matter these claims are dependant upon. LIAO further discloses wherein the second executable portion is adapted to represent visually the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 25) and wherein the fourth executable portion is adapted to represent visually a second bandwidth using a second icon corresponding to a second bandwidth (paragraph 11, 25). However, LIAO does not disclose wherein the second bandwidth is the required bandwidth. LIAO discloses wherein a required bandwidth calculation is made (paragraph 28, 40, 67, 68). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive signals, as LIAO also teaches calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display.

Regarding claim 49, see the rejections of the parent claims concerning the subject matter these claims are dependant upon. LIAO further discloses wherein the second and fourth executable portions are adapted to represent visually the first icon in comparative relation to the second icon (paragraph 11, 25)

2. Claims 3, 11, 23, 31, 43, and 51 are rejected under 35 U.S.C. 103(a) as being unpatentable over LIAO et al (US 2003/0169460) in view of KO et al (US 2004/0048624).

Regarding claim 3, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. However, LIAO does not disclose wherein the terminal is adapted to communicate via a plurality of different communications systems, wherein the controller is further capable of determining the current communications system on which the terminal is transmitting and receiving signals, and wherein the display is further capable of visually representing the current communications system on which the terminal is transmitting and receiving signals. KO discloses wherein the terminal adapted to communicate via a plurality of different communications systems (paragraph 51, 58), wherein the controller is further capable of determining the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58), and wherein the display is further capable of visually representing the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to communicate to different communication systems and display current communication system, as taught by KO as both systems relate to signal transmission to a portable device. This is beneficial in that it allows LIAO to be notified when roaming on a different communication system.

Regarding claim 11, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the controller is further capable of directing the display to visually represent the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 47, 50).

Regarding claim 23, see the rejection of the parent claims concerning the subject matter this claim is dependant upon. However, LIAO does not disclose further comprising: determining a type of the current communications system on which the terminal is transmitting and receiving signals; and controlling the display of the terminal to visually represent the type of the current communications system on which the terminal is transmitting and receiving signals. KO discloses further comprising: determining a type of the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58); and controlling the display of the terminal to visually represent the type of the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to communicate to different communication systems and display current communication system, as taught by KO as both systems relate to signal transmission to a portable device. This is beneficial in that it allows LIAO to be notified when roaming on a different communication system.

Regarding claim 31, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein controlling the

display of the terminal further comprises representing visually the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 47, 50).

Regarding claim 43, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. However, LIAO does not expressly disclose further comprising: a fifth executable portion for determining a type of the current communications system on which the terminal is transmitting and receiving signals; and a sixth executable portion for controlling the display to visually represent the type of the current communications system on which the terminal is transmitting and receiving signals. KO discloses further comprising: an executable portion for determining a type of the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58); and an executable portion for controlling the display to visually represent the type of the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to communicate to different communication systems and display current communication system, as taught by KO as both systems relate to signal transmission to a portable device. This is beneficial in that it allows LIAO to be notified when roaming on a different communication system.

Regarding claim 51, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the second executable portion is adapted to represent visually the available bandwidth using a first icon corresponding to the available bandwidth (paragraph 11, 47, 50).

3. Claims 5, 25, and 45 are rejected under 35 U.S.C. 103(a) as being unpatentable over LIAO et al (US 2003/0169460) in view of ARSENAULT et al (US 6,501,770 B2).

Regarding claim 5, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the controller is further capable of directing the display to separately visually represent bandwidths (paragraphs 11, 25). However, LIAO does not disclose wherein the controller is capable of separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception, and wherein the controller is further capable of directing the display to separately visually represent the respective bandwidths available for signal transmission and signal reception. ARSENAULT discloses wherein the controller is capable of separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception (abstract, column 27:lines 26-43), and wherein the controller is further capable of separately representing the respective bandwidths available for signal transmission and signal reception (abstract, column 27:lines 26-43). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to separately determine transmission and reception bandwidths, as taught by ARSENAULT, as both systems deal with bandwidth optimization in an over the air communication system. This is beneficial in that it allows manual adjustment of transmission and reception rates using a visual display.

Regarding claim 25, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LIAO further discloses wherein controlling the

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display comprises controlling the display to separately visually represent separate bandwidths available (paragraphs 11, 25). However, LIAO does not disclose wherein determining the available bandwidth comprises separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception, and wherein controlling the display comprises controlling the display to separately visually represent the respective bandwidths available for signal transmission and signal reception. ARSENAULT discloses wherein determining the available bandwidth comprises separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception (abstract, column 27:lines 26-43), and representing the respective bandwidths available for signal transmission and signal reception (abstract, column 27:lines 26-43). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to separately determine transmission and reception bandwidths, as taught by ARSENAULT, as both systems deal with bandwidth optimization in an over the air communication system. This is beneficial in that it allows manual adjustment of transmission and reception rates using a visual display.

Regarding claim 45, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein said second executable portion is capable of controlling the display to separately visually represent the respective bandwidths available (paragraph 11, 25). However, LIAO does not disclose wherein said first executable portion is capable of separately determining the bandwidth available for signal transmission and the bandwidth available for signal



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reception, and wherein said second executable portion is capable of controlling the display to separately visually represent the respective bandwidths available for signal transmission and signal reception. ARSENAULT discloses wherein said first executable portion is capable of separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception (abstract, column 27:lines 26-43), and wherein said second executable portion is capable of representing the respective bandwidths available for signal transmission and signal reception (abstract, column 27:lines 26-43). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to separately determine transmission and reception bandwidths, as taught by ARSENAULT, as both systems deal with bandwidth optimization in an over the air communication system. This is beneficial in that it allows manual adjustment of transmission and reception rates using a visual display.

4. Claims 10, 30, and 50 are rejected under 35 U.S.C. 103(a) as being unpatentable over LIAO et al (US 2003/0169460) in view of ROSENFLED (US 2004/0071081 A1).

Regarding claim 10, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the controller is further capable of directing the display to visually represent the second icon in a second color used to indicate a value of a bandwidth (paragraph 11, 25). However, LIAO does not disclose that the bandwidth is a ratio of the required bandwidth to the available bandwidth. ROSENFLED discloses calculating a ratio of the required bandwidth to the

available bandwidth (paragraphs 27-30). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include a method of calculating a ratio of the required bandwidth to the available bandwidth, as taught by ROSENFLED, as both systems relate to bandwidth regulation. This is beneficial in that a ratio of required bandwidth to available bandwidth would provide a visual display of system load capacity.

Regarding claim 30, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein controlling the display of the terminal further comprises: calculating a ratio of the required bandwidth to the available bandwidth; and representing visually the second icon in a second color used to indicate a value of a bandwidth. However, LIAO does not disclose that the bandwidth is a ratio of the required bandwidth to the available bandwidth. ROSENFLED discloses calculating a ratio of the required bandwidth to the available bandwidth (paragraphs 27-30). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include a method of calculating a ratio of the required bandwidth to the available bandwidth, as taught by ROSENFLED, as both systems relate to bandwidth regulation. This is beneficial in that a ratio of required bandwidth to available bandwidth would provide a visual display of system load capacity.

Regarding claim 50, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses further comprising a seventh executable portion for calculating a ratio of the required bandwidth to the

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available bandwidth, and wherein the fourth executable portion is adapted to represent visually the second icon in a second color used to indicate a bandwidth calculated by the fifth executable portion. However, LIAO does not disclose that the bandwidth is a ratio of the required bandwidth to the available bandwidth. ROSENFLED discloses calculating a ratio of the required bandwidth to the available bandwidth (paragraphs 27-30). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include a method of calculating a ratio of the required bandwidth to the available bandwidth, as taught by ROSENFLED, as both systems relate to bandwidth regulation. This is beneficial in that a ratio of required bandwidth to available bandwidth would provide a visual display of system load capacity.

5. Claims 12, 32, and 52 are rejected under 35 U.S.C. 103(a) as being unpatentable over LIAO et al (US 2003/0169460) in view of KO et al (US 2004/0048624) and further in view of ZANCHO (US 5,630,159).

Regarding claim 12, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KO further discloses wherein the controller is further capable of directing the display to visually represent the first icon used to indicate the type of the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58). However, the combination of LIAO and KO does not disclose wherein the first icon is colored to distinguish communication systems. ZANCHO discloses wherein the icon is colored to distinguish communication systems (column 6:line 63-column 7:line18). Therefore it would have

been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of LIAO and KO to include the ability to change icon color based on communication systems, as taught by ZANCHO, as both systems relate to mobile device configuration. This is beneficial in that it allows the user the ability to configure the mobile device based on personal preferences.

Regarding claim 32, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KO further disclose wherein controlling the display of the terminal further comprises representing visually the first icon used to indicate the type of the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58). However, the combination of LIAO and KO do not disclose wherein the first icon is colored to distinguish communication systems.

ZANCHO discloses wherein the icon is colored to distinguish communication systems (column 6:line 63-column 7:line18). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of LIAO and KO to include the ability to change icon color based on communication systems, as taught by ZANCHO, as both systems relate to mobile device configuration. This is beneficial in that it allows the user the ability to configure the mobile device based on personal preferences.

Regarding claim 52, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. KO further discloses wherein the sixth executable portion is adapted to represent visually the first icon used to indicate the type of the current communications system on which the terminal is transmitting and receiving

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signals (paragraph 51, 58). However, the combination of LIAO and KO do not disclose wherein the first icon is colored to distinguish communication systems. ZANCHO discloses wherein the icon is colored to distinguish communication systems (column 6:line 63-column 7:line18). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of LIAO and KO to include the ability to change icon color based on communication systems, as taught by ZANCHO, as both systems relate to mobile device configuration. This is beneficial in that it allows the user the ability to configure the mobile device based on personal preferences.

6. Claims 17, 18, 37 and 38 are rejected under 35 U.S.C. 103(a) as being unpatentable over LIAO et al (US 2003/0169460) in view of WATANABE (US 6,233,469 B1).

Regarding claim 17, LIAO discloses a system comprising: a first terminal comprising a transmitter and a receiver for transmitting and receiving signals (30-Figure 1), respectively, via the at least one communications system (100-Figure 2; paragraph 37); a controller [processor] capable of determining the available bandwidth of the communications system utilized by said first terminal (paragraph 11, 25); and a display, responsive to said controller (40-Figure 1; paragraph 11, 47, 50), comprising a display capable of visually representing an available bandwidth of the communications system utilized by said first terminal (40-Figure 1; paragraph 11, 47, 50). However, LIAO does not disclose wherein the display is a separate terminal. WATANABE discloses wherein the display is a separate terminal (4-Figure 5; column 5:line 44-column 6:line 5; column

10:lines 12-24). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include a separate display responsive to a first terminal, as taught by WATANABE, as both systems relate to mobile devices. This is beneficial in that providing a separate display allows viewing of the display while communicating on the mobile device.

Regarding claim 18, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the controller is further capable of determining a required bandwidth for transmitting and receiving signals on the current communications system (paragraph 28, 40, 67, 68). However, LIAO does not specifically disclose wherein the display is further capable of visually representing the required bandwidth for transmitting and receiving signals on the current communications system by said first terminal. LIAO discloses wherein the display is capable of displaying a determined quantity of bandwidth associated with a current communication system (paragraph 11, 25, 47). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive signals, as LIAO also teaches calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display. However, LIAO does not disclose wherein the display is a separate terminal. WATANABE discloses wherein the display is a separate terminal (4-Figure 5; column 5:line 44-column 6:line 5; column 10:lines 12-24). Therefore it would have been obvious to a person of ordinary skill in the art at the

time the invention was made to modify LIAO to include a separate display responsive to a first terminal, as taught by WATANABE, as both systems relate to mobile devices. This is beneficial in that providing a separate display allows viewing of the display while communicating on the mobile device.

Regarding claim 37, LIAO discloses a method comprising: transmitting and receiving signals with a first terminal on the at least one communications system (paragraph 11, 25); determining an available bandwidth of the communications system utilized by the first terminal (paragraph 11, 25); and controlling a display to visually represent the available bandwidth of the communications system utilized by the first terminal (paragraph 11, 25). However, LIAO does not disclose wherein the display is a separate terminal. WATANABE discloses wherein the display is a separate terminal (4-Figure 5; column 5:line 44-column 6:line 5; column 10:lines 12-24). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include a separate display responsive to a first terminal, as taught by WATANABE, as both systems relate to mobile devices. This is beneficial in that providing a separate display allows viewing of the display while communicating on the mobile device.

Regarding claim 38, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses further comprising: determining a required bandwidth for transmitting and receiving signals on the current communications system (paragraph 28, 40, 67, 68). However, LIAO does not specifically disclose controlling the display of the terminal to visually represent the

required bandwidth for transmitting and receiving signals on the current communications system. LIAO discloses wherein the display is capable of displaying a determined quantity of bandwidth associated with a current communication system (paragraph 11, 25, 47). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to display the bandwidth determined necessary to transmit and receive signals, as LIAO also teaches calculating the bandwidth needed to transmit and receive to and from a communication system. This is beneficial in that manual adjustment of bandwidth usage can be determined by the visual display. However, LIAO does not disclose wherein the display is a separate terminal. WATANABE discloses wherein the display is a separate terminal (4-Figure 5; column 5:line 44-column 6:line 5; column 10:lines 12-24). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include a separate display responsive to a first terminal, as taught by WATANABE, as both systems relate to mobile devices. This is beneficial in that providing a separate display allows viewing of the display while communicating on the mobile device.

7. Claims 19 and 39 are rejected under 35 U.S.C. 103(a) as being unpatentable over LIAO et al (US 2003/0169460) in view of KO et al (US 2004/0048624), and in further view of WATANABE (US 6,233,469 B1).

Regarding claim 19, see the rejections of the parent claim concerning the subject matter these claim is dependant upon. However, LIAO does not disclose wherein the terminal is adapted to communicate via a plurality of different communications systems,



wherein the controller is further capable of determining the current communications system on which the terminal is transmitting and receiving signals, and wherein the display is further capable of visually representing the current communications system on which the terminal is transmitting and receiving signals. KO discloses wherein the terminal adapted to communicate via a plurality of different communications systems (paragraph 51, 58), wherein the controller is further capable of determining the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58), and wherein the display is further capable of visually representing the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to communicate to different communication systems and display current communication system, as taught by KO as both systems relate to signal transmission to a portable device. This is beneficial in that it allows LIAO to be notified when roaming on a different communication system. However, the combination of LIAO and KO does not disclose wherein the display is a separate terminal. WATANABE discloses wherein the display is a separate terminal (4-Figure 5; column 5:line 44-column 6:line 5; column 10:lines 12-24). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of LIAO and KO to include a separate display responsive to a first terminal, as taught by WATANABE, as both systems relate to mobile devices. This is beneficial in that providing a separate display allows viewing of the display while communicating on the mobile device.

Regarding claim 39, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. However, LIAO does not disclose further comprising: determining a type of the current communications system on which the terminal is transmitting and receiving signals; and controlling the display of the terminal to visually represent the type of the current communications system on which the terminal is transmitting and receiving signals. KO discloses further comprising: determining a type of the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58); and controlling the display of the terminal to visually represent the type of the current communications system on which the terminal is transmitting and receiving signals (paragraph 51, 58). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to communicate to different communication systems and display current communication system, as taught by KO as both systems relate to signal transmission to a portable device. This is beneficial in that it allows LIAO to be notified when roaming on a different communication system. However, the combination of LIAO and KO does not disclose wherein the display is a separate terminal. WATANABE discloses wherein the display is a separate terminal (4-Figure 5; column 5:line 44-column 6:line 5; column 10:lines 12-24). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of LIAO and KO to include a separate display responsive to a first terminal, as taught by WATANABE, as both systems relate to mobile devices. This

is beneficial in that providing a separate display allows viewing of the display while communicating on the mobile device.

8. Claims 20 and 40 are rejected under 35 U.S.C. 103(a) as being unpatentable over LIAO et al (US 2003/0169460) in view of ARSENAULT et al (US 6,501,770 B2), and further in view of WATANABE (US 6,233,469 B1).

Regarding claim 20, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. LIAO further discloses wherein the controller is further capable of directing the display to separately visually represent bandwidths (paragraphs 11, 25). However, LIAO does not disclose wherein the controller is capable of separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception, and wherein the controller is further capable of directing the display to separately visually represent the respective bandwidths available for signal transmission and signal reception. ARSENAULT discloses wherein the controller is capable of separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception (abstract, column 27:lines 26-43), and wherein the controller is further capable of separately representing the respective bandwidths available for signal transmission and signal reception (abstract, column 27:lines 26-43). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to separately determine transmission and reception bandwidths, as taught by ARSENAULT, as both systems deal with bandwidth optimization in an over the air communication system. This is beneficial in that it allows

manual adjustment of transmission and reception rates using a visual display.

However, the combination of LIAO and ARSENAULT does not disclose wherein the display is a separate terminal. WATANABE discloses wherein the display is a separate terminal (4-Figure 5; column 5:line 44-column 6:line 5; column 10:lines 12-24).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of LIAO and ARSENAULT to include a separate display responsive to a first terminal, as taught by WATANABE, as both systems relate to mobile devices. This is beneficial in that providing a separate display allows viewing of the display while communicating on the mobile device.

Regarding claim 40, see the rejections of the parent claim concerning the subject matter this claim is dependant upon. Regarding claim 25, see the rejections of the parent claim concerning the subject matter this claim is dependent upon. LIAO further discloses wherein controlling the display comprises controlling the display to separately visually represent separate bandwidths available (paragraphs 11, 25). However, LIAO does not disclose wherein determining the available bandwidth comprises separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception, and wherein controlling the display comprises controlling the display to separately visually represent the respective bandwidths available for signal transmission and signal reception. ARSENAULT discloses wherein determining the available bandwidth comprises separately determining the bandwidth available for signal transmission and the bandwidth available for signal reception (abstract, column 27:lines 26-43), and representing the respective bandwidths available for signal

transmission and signal reception (abstract, column 27:lines 26-43). Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify LIAO to include the ability to separately determine transmission and reception bandwidths, as taught by ARSENAULT, as both systems deal with bandwidth optimization in an over the air communication system. This is beneficial in that it allows manual adjustment of transmission and reception rates using a visual display.

However, the combination of LIAO and ARSENAULT does not disclose wherein the display is a separate terminal. WATANABE discloses wherein the display is a separate terminal (4-Figure 5; column 5:line 44-column 6:line 5; column 10:lines 12-24).

Therefore it would have been obvious to a person of ordinary skill in the art at the time the invention was made to modify the combination of LIAO and ARSENAULT to include a separate display responsive to a first terminal, as taught by WATANABE, as both systems relate to mobile devices. This is beneficial in that providing a separate display allows viewing of the display while communicating on the mobile device.

#### **(10) Response to Argument**

**Argument I-A (pages 5-6):**

Regarding independent claims 1, 21, and 41, the applicant argues "*Liao teaches away from the display of the required bandwidth for transmitting and receiving signals on the current system prior to modifying communications therewith. Specifically, there is no reason for the system disclosed in LIAO to display the required bandwidth for transmitting and receiving signals on the current communications system prior to modifying communications therewith...Liao teaches away from displaying the required*

*bandwidth since the required bandwidth is determination is disclosed in Liao as an intermediate step that leads to the "automatic" allocation of bandwidth among competing applications."* (see Arguments page 6, paragraph 1 and 2); the examiner respectfully disagrees.

The application monitor (114) and connection manager module (110) as shown in Figure 3 applies to the software provided and located within the cellular phone (paragraph 18). It would be necessary to monitor the bandwidth that an application uses as shown in Figure 3 to determine the required bandwidth necessary for the device. On paragraph 40, Liao shows monitoring of bandwidth usage of running applications as well as the available bandwidth of the system. It can further be seen on paragraph 59 that the mobile phone performs a query to the communication system to determine available bandwidth prior to modifying communication. Bandwidth optimization is performed by determining the amount of system bandwidth available and current bandwidth usage by applications running on the mobile device. Although Liao teaches the display of available bandwidth (Figures 5A and 5B) and calculating necessary bandwidth used by applications on the mobile device (paragraph 40), Liao does not expressly show displaying the required bandwidth information to a user. However, it would have been obvious to a person of ordinary skill in the art at the time the invention was made to display this information to a user when manually configures the bandwidth allocation.

Allocation of bandwidth, as disclosed by Liao is provided either manually or automatically. In one embodiment of LIAO, a pop-up screen is presented to the user in

order for a user to select bandwidth upgrades of currently running applications. Such a scenario can be seen in paragraph 26 and 40, where a user is allowed to determine which application receives additional bandwidth available using a touch screen or soft keys of the mobile device. The user manually selects which application receives a bandwidth adjustment. Therefore the benefits of presenting required bandwidth to the user is apparent as LIAO teaches wherein the display includes the capability to display other forms of bandwidth of the system (paragraph 11, 25, 47) and this information would be beneficial when used to manually upgrade the bandwidth of an application that a user deems important. Also, the examiner contends that claim 1, as written, provides the limitations "a display **capable** of" and "a controller **capable** of ". It is clear that the display and controller would have the **capabilities** to display many forms of bandwidth including the required bandwidth for transmitting and receiving signals.

The examiner acknowledges that in a preferred embodiment the system of Liao provides automatic allocation of bandwidth to the mobile device, however, Liao also teaches where a user manually selects which application receives a bandwidth upgrade (see paragraphs 40, Figures 5A and 5B) and therefore, the reference does not teach away from displaying the required bandwidth of an application (see paragraphs 49, 50).

**Argument I-B (page 7):**

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention

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where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992).

While the applicant maintains that "*Liao specifically teaches away from manual adjustment of bandwidth*", it is clear that Liao teaches both manual and automatic adjustments to the bandwidth (see paragraph 40 and Figures 5A, 5B). Paragraph 49, describes the bandwidth displayed to the user and operations to upgrade or downgrade bandwidth to an application. A user can use the touch screen or alternatively press "#" to upgrade and press "\*" to downgrade. Therefore, Liao does not teach away from manual adjustments and a person of ordinary skill in the art at the time the invention was made would have realized that the modification of Liao would be beneficial during bandwidth adjustments by the user.

**Argument I-C (page 8):**

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does not include knowledge gleaned only from the applicant's disclosure, such a



reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

**Argument I-D (page 8):**

The applicant argues *"the additional references combined with Liao do not overcome the deficiencies of the pending rejections"*.

The alleged deficiencies of Liao have been addressed above. Watanabe, Ko, Arsenault, Rosenfled, and Zanchi are used in combination with Liao to address dependent subject matter.

**Argument II-A (pages 8-9):**

Regarding claims 17 and 37, the applicant argues that *"Watanabe contains no suggestion of the desirability of tracking bandwidth at all, and Liao, when viewed as a whole, suggest that bandwidth that bandwidth tracking should result in the automatic selection of an application that is most active in bandwidth usage for a bandwidth reallocation (thereby negating the need to view a bandwidth display, as such bandwidth tracking and reallocation may be transparent to a user)."*

As address above, bandwidth allocation occurs either manually or automatically, therefore. Liao shows on Figures 5A and 5B that a user is shown the available and current bandwidth of the system and application and is allowed to upgrade and downgrade bandwidth using a touch screen or alternative using keys on the mobile device. While Watanabe does not show the desirability of tracking bandwidth, Watanabe does make clear that the use of dual display within a mobile device would be advantageous to a user. In the same field of the endeavor, Liao is used to show the

desirability of tracking bandwidth as well as display of bandwidth information to a user. Therefore, the combination of Liao and Watanabe provide the limitations of the applicants claimed invention.

**Argument II-B (pages 9-10):**

In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both inventions are related in that they are both used to display information to a user using a mobile device within a communication system. As disclosed by Watanabe, this is beneficial in that separate displays would allow more convenient viewing of a display when the communication device is in use (abstract).

**Argument II-C (page 10):**

In response to applicant's argument that the examiner's conclusion of obviousness is based upon improper hindsight reasoning, it must be recognized that any judgment on obviousness is in a sense necessarily a reconstruction based upon hindsight reasoning. But so long as it takes into account only knowledge which was within the level of ordinary skill at the time the claimed invention was made, and does

not include knowledge gleaned only from the applicant's disclosure, such a reconstruction is proper. See *In re McLaughlin*, 443 F.2d 1392, 170 USPQ 209 (CCPA 1971).

**Argument II-D (page 11):**

The Applicant argues "*the additional Ko and Arsenault references, combined with Liao and Watanabe, do not overcome the deficiencies of the pending rejections as discussed herein.*"

The alleged deficiencies of Liao and Watanabe have been addressed above. Ko and Arsenault are used in combination with those references to address dependent subject matter.

**(11) Related Proceeding(s) Appendix**

No decision rendered by a court or the Board is identified by the examiner in the Related Appeals and Interferences section of this examiner's answer.

For the above reasons, it is believed that the rejections should be sustained.

Respectfully submitted,

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